

What is claimed is:

1. A method of dynamically connecting a client node to a serving network, comprising the steps of:
 - providing an access network to which a client node has a network connection;
 - providing at least one access router having a network connection to said access network and having a network connection to at least one serving network;
 - sending serving network provider advertising information to said client node;
 - receiving from said client node serving network provider information specifying a serving network to which said client node desires access; and
 - establishing a communication tunnel between said client node and said access router through said access network, such that said client node is able to send and receive data packets to and from the serving network specified by said client node within said communication tunnel through said access network.
2. A method as set forth in claim 1, further comprising the step of authenticating said client node prior to establishing said communication tunnel.
3. A method as set forth in claim 1, further comprising the step of providing a second access router having a network connection to said access network and having network connections to at least two serving networks.
4. A method as set forth in claim 3, wherein when a serving network specified by said client node is associated with said second access router, said establishing step further comprises the step of binding said communication tunnel to said specified serving network associated with said second access router by using serving network information of said specified serving network as a security association identifier of said communication tunnel.

5. A method as set forth in claim 1, wherein said access router has network connections to at least two serving networks, said method further comprising the step of establishing a second communication tunnel between said client node and said access router through said access network, such that said client node is able to selectively send and receive data packets to and from each of said two serving networks.

6. A method as set forth in claim 1, further comprising the step of providing a second access router having a network connection to said access network and a network connection to at least one serving network, said method further comprising the step of establishing a second communication tunnel between said client node and said second access router through said access network, such that said client node is able to selectively send and receive data packets to and from each of said serving networks associated with said access routers through said communication tunnels.

7. A method as set forth in claim 1, wherein said step of sending serving network provider advertising information comprises the step of using a PANA protocol.

8. A method as set forth in claim 1, wherein said step of sending serving network provider advertising information comprises the step of using a Router Discovery mechanism.

9. A method as set forth in claim 1, wherein said at least one serving network comprises an Internet Service Provider network.

10. A method as set forth in claim 1, wherein said at least one serving network comprises a Network Access Provider network.
11. A method as set forth in claim 1, wherein said at least one serving network comprises a VLAN network.
12. A method as set forth in claim 11, further comprising the step of providing a virtual access point in said VLAN serving network, through which a client node may connect directly to said VLAN serving network.
13. A method as set forth in claim 1, wherein said access network comprises an IP access network.
14. A method as set forth in claim 1, wherein said access network comprises a VLAN access network.
15. A method as set forth in claim 14, wherein said VLAN access network is partitioned into multiple VLAN access sub-networks.
16. A method as set forth in claim 14, further comprising the step of providing a virtual access point in said VLAN access network, through which a client node may connect to said VLAN access network.
17. A method as set forth in claim 1, wherein said client node connects to said access network via a remote network.
18. A method as set forth in claim 1, wherein the step of establishing said communication tunnel comprises the step of using an IPSec key management protocol.

19. A method as set forth in claim 1, wherein said client node is a mobile node, and said network connection of said client node to said access network is a wireless connection.

20. A method as set forth in claim 1, wherein said communication tunnel is a secure communication tunnel.

21. A method as set forth in claim 20, further comprising the step of establishing said secure communication tunnel using an IPSec key management protocol.

22. A method of connecting a client node to multiple Internet service providers, comprising the steps of:

providing an access network through which said client node may communicate with said multiple Internet service providers; and

establishing a separate communication tunnel within said access network for each of said multiple Internet service providers, such that said client node is able to send and receive data packets to and from each of said Internet service providers within said separate communication tunnels through said access network.

23. A method as set forth in claim 22, wherein said communication tunnel is a secure communication tunnel.

24. A method as set forth in claim 23, further comprising the step of establishing said secure communication tunnel using an IPSec key management protocol.

25. A method of connecting a client node to a serving network, comprising the steps of:

providing an access router having a network connection to at least two serving networks;

receiving from said client node serving network information specifying a serving network to which said client node desires to have access;

establishing a communication tunnel between said client node and said access router through said access network, such that said client node is able to send and receive data packets to and from the serving network specified by said client node within said communication tunnel through said access network; and

binding said communication tunnel to said specified serving network by using serving network information of said specified serving network as a security association identifier of said communication tunnel.

26. A method as set forth in claim 25, wherein said communication tunnel is a secure communication tunnel.

27. A method as set forth in claim 26, further comprising the step of establishing said secure communication tunnel using an IPSec key management protocol.